branching off of the Obsoletes took place in the Upper Carboniferous. The author describes the geologic events of the Upper Carboniferous and shows their influence on the shell development, which is a definitive characteristic of Protriticites. Its shell structure had disadvantages as well as advantages; because the walls of single portions were of inequal strength they could be damaged by wave action. This condition and others led to a short lifespan for Protriticites. The followers of Protriticites were the triticitids (Fig 1 e). The author describes the further development of the families, Schwagerinidae, Fusulinidae and of the genus Obsoletes. The author maintains that the above-mentioned determining characteristics of the genera are very scarce and doubts that they have taxonomic rank. This can only be decided by further study and evaluation. There are 1 figure and 8 Soviet references.

ASSOCIATION: Rostovskiy—na-Donu gosudarstvennyy universitet (Rostov-na-Donu State University)

RYAZANOV, G. M., Engr

USSR/Metals - Cutting Jul 50

"Rapid Gas Cutting of Pipes," Engineers A. I. Brodskiy, A. N. Iroshnikov, P. G. Rybalko, G. M. Ryazanov

"Avtogen Delo" No 7, pp 21-23

Suggests two most efficient methods for cutting pipes: tangential gas cutting and electric-arc cutting under flux. Latter is simpler and less expensive, but gas cutting permits smooth edges without subsequent machining. Experiments established possibility of tangential cutting with single cutting torch at speed of 2.7 m/min for 7-10 mm thicknesses (4-5 times faster than speed of usual cutting methods).

FDD PA 167T65

RYAZANOV, G.V.

Asymptotic behavior of correlations for a plane Ising lattice.
Zhur.eksp.i teor.fiz. 49 no.4:1134-1144 O '65.
(MIRA 18:11)

L 22448-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6002590 (A) SOURCE CODE: UR/0286/65/000/023/0088/0088

AUTHORS: Petkevich, A. A.; Kopityanskiy, L. R.; Drugov, F. P.; Murav'yeva, T. D.; Byl'tsova, V. K.; Yudina, E. G.; Ponomarev, V. V.; Ryazanov, G. N.

ORG: none

TITLE: Cover for pneumatic tires of wheeled vehicles with a multilayer carcass. Class 63, No. 176808 announced by Krasnoyarsk Tire Factory (Krasnoyarskiy shinnyy zavod)

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 88

TOPIC TAGS: tire, vehicle, polyamide

ABSTRACT: This Author Certificate presents a cover for pneumatic tires of wheeled vehicles with a multilayer carcass formed by polyamide and viscose cords. For improved tire life, the first and last few layers are made of polyamide cords, while the middle layers consist of viscose cords (see Fig. 1).

Card 1/2 UDC: 629.11.012.553.1

L 22448-66

ACC NR: AP6002590

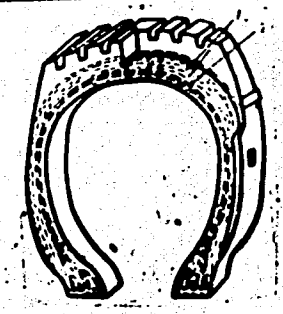

Fig. 1. 1 - carcass layer of polyamide cord; 2 - viscose cord carcass layer.

Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 03Jan64

Card 2/2 BLG

L 12780-66 EWT(1)/T IJP(c) GG

ACC NR: AP5026606 SOURCE CODE: UR/0056/65/049/004/1134/1144

44,55

AUTHOR: Ryazanov, G. V.

65
50
B

ORG: None

TITLE: Asymptotic behavior of the correlations for a plane Ising lattice

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 4, 1965, 1134-1144

TOPIC TAGS: correlation statistics, magnetic moment, asymptotic property, phase transition

21,44,55

ABSTRACT: This work is claimed to be the next step in the determination of macroscopic characteristics of the Ising lattice, following the determination of the specific heat (by L. Onsager, Phys. Rev. 65, 117, 1944) and of the magnetic moment (by C. N. Yang, Phys. Rev. v. 85, 808, 1952), and is devoted to calculation of the correlation function. The calculation is based on a generalization of the Szego-Katz formalism (I. Stephenson, J. Math. Phys. v. 5, 1009, 1964) for the calculation of the spontaneous magnetic moment of the Ising lattice. The procedure of reducing the problem of calculating the correlations far away from the transition point to a solution of a simpler equation is developed in

Card 1/2

L 12780-66

ACC NR: AP5026606

detail, and an alternate method of computation is devised for the vicinity of the transition point. No account of the angular dependence of the correlation is taken, and the correlation is evaluated only along the diagonals of a square lattice. Author thanks Yu. B. Rumer, V. G. Vaks, A. I. Larkin, Yu. N. Ovchinnikov, and V. L. Berezinskiy for help. Orig. art. has: 43 formulas.

SUB CODE: 20/ SUBM DATE: 08Apr65/ NR REF SOV: 003/ OTH REF: 009

Card 2/2

RYAZANOV, G.V.

AUTHOR: Ryazanov, G.V. 56-6-18/47

TITLE: The Sum Over the Trajectories for the Dirac Equation (Summa po putyam dlya uravneniya Diraka)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1957, Vol. 33, Nr 6(12), pp. 1437-1444 (USSR)

ABSTRACT: It is shown that, under certain conditions concerning the motion of the electron, Feynman's sum concerning the trajectories agrees with the distribution function of the Dirac equation. Although the final aim is the Dirac equation, it is advisable at first to deal with the two-dimensional equation. The relativistic formulation of Feynman's principle is here investigated on the basis of the equation:

$$\left[(\partial/\partial t+iA_t)+\sigma_1(\partial/\partial r-iA_r)+i\mu\sigma_3\right]\psi = 0 \quad \psi = \begin{pmatrix}\psi_1(r,t)\\ \psi_{-1}(r,t)\end{pmatrix},$$

$\sigma_3 = \begin{pmatrix}1 & 0\\ 0 & -1\end{pmatrix}$, $\sigma_1 = \begin{pmatrix}0 & 1\\ 1 & 0\end{pmatrix}$. The classical action in this case is

$\int(-\mu\sqrt{dt^2-dr^2} + A_r dr - A_t dt)$. This is, so to speak, the half of

Card 1/3

the Dirac equation and the results of this investigation continue to hold good for the electron. The determination of the trajectories of the particle is discussed. The interpretation given necessarily leads to the occurrence of spinor indices in the propagation function (i.e. in the solution of the equation). This propagation function can be represented by a sum, and a part of the trajectories goes over into this sum with a reversed sign. In non-relativistic approximation only those trajectories remain, in which the sign of the modification of eigentime along the trajectory does not change. When passing over to classical mechanics ($h \to 0$) the aspect of the motion changes essentially. In the quantization of relativistic equations the non-relativistic Feynman principle (or, which is the same thing, replacement of momenta by operators) is therefore insufficient. There follow some remarks concerning the derivation of the non-relativistic Feynman principle, after which Feynman's relation for an infinitely small interval of time is derived in mixed representation. The relativistic wave function $\psi_\alpha(x_\gamma)$ supplies not only the probability of finding the

particle at the point x_ν , but it supplies also some data concerning the motion of this particle through this point. There are 3 figures, and 6 references, 1 of which is Slavic.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: June 15, 1957

AVAILABLE: Library of Congress

Card 3/3

SHELYUBSKIY, V.I.; RYAZANOV, G.V.

Role of diffusion in a process for the production of glass specimens of variable composition. Dokl. AN SSSR 156 no. 2: 302-305 My '64. (MIRA 17:7)

1. Predstavleno akademikom S.A.Vekshinskim.

RYAZANOV, G.V.

Space - time approach to quantum field theory. Zhur. eksp. i teor. fiz. 43 no.4:1281-1287 O '62. (MIRA 15:11)
(Space and time)
(Quantum field theory)

RYAZANOV, G. V.: Master Phys-Math Sci (diss) -- "Quantum mechanics as a consequence of the unitary principle". Moscow, 1958. 8 pp (Moscow State U im M. V. Lomonosov, Phys Faculty, Chair of Theroetical Phys), 100 copies (KL, No 10, 1959, 122)

AUTHOR: Ryazanov, G. V. SOV/56-35-1-17/59

TITLE: Quantum-Mechanical Probabilities as Sums Over Trajectories (Kvantovomekhanicheskiye veroyatnosti kak summy po putyam)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 1, pp 121 - 131 (USSR)

ABSTRACT: Feynman (Ref 1) was the first to suggest that, within the framework of quantum-mechanics, a general expression be formulated for the probability amplitude of any event. In classical statistical physics it is possible to represent the probability of a system possessing any properties as a sum over configurations possessing these properties; to each configuration of particles there corresponds a Gibbs weight. In quantum-mechanics the trajectories of particles play the part of configurations, and the probabilities are (according to Feynman) replaced by amplitudes (because the latter are added up and multiplied like classical probabilities). The author of the present paper develops Feynman's idea further and suggests a new (non-relativistic) general quantum-mechanical

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formulation for the probability of any event, which makes it possible to work without using any wave functions or operators. The new formulation is based on the application of a modified Gibbs principle; the probability for a property is represented as the sum over all trajectories possessing this property:

$$W(a)=\int_a \cos\,(S/h)\,d\Gamma$$

cos(S/h) is the Gibbs weight with which every trajectory is introduced into the expression. a(x(t)) are physical quantities which depend upon the path x(t). (a may denote a coordinate, a velocity, an energy at a given instant, two coordinates at different instants etc). $\int_a d\Gamma$ is the integral over all trajectories for which a(x(t))=a. The formulation

$$W(a)=\int_a e^{iS/h}d\Gamma; \qquad (4)$$

Card 2/4 can, if integration is formally carried out over trajectories

Quantum-Mechanical Probabilities as Sums Over Trajectories SOV/56-35-1-17/59

with complex time and if ih/kT is considered to be a modification of time, go over into the Gibbs principle. (4) contains both Gibbs' and Hamilton's (Gamil'ton) principle. The author demonstrates the application of his method on the basis of an ansatz for a scattering, a determination of the distribution of the coordinates in a steady state with the energy E, $W(x|E)$, and, finally, by dealing with the problem of refraction by two holes. In conclusion the author thanks V.Ya.Feynberg for supervising work and for his advice. There are 5 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)
SUBMITTED: January 28, 1958

Card 3/4

S/056/62/043/004/023/061
B108/B186

AUTHOR: Ryazanov, G. V.

TITLE: A space-time approach to quantum field theory

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1281 - 1287

TEXT: With the aid of trajectory statistics for particles able to move to and fro along the time axis the author describes the quantum mechanical features of particles. The "single principle" W(a) introduced earlier (ZhETF, 35, 121, 1958) as a distribution of the quantity a is extended to the relativistic case: $W(a) = \int_a (-1)^s W\{x(t)\}\,\delta x(t)$. The integral is to be extended over all trajectories having the property a, where $W\{x(t)\}$ is the probability that a trajectory s(t) will fall out and s is the number of acausal transitions in which the number of particles is proportional to the number of particles in the final state. Based on the idea that the system of particles and antiparticles perform natural oscillations a universal

Card 1/2

A space-time approach to quantum...

distribution of the type $W\{x(t)\}\delta x(t) = \nu^q \prod_{-\infty}^{\infty} \delta(\Delta S_k) d^3x_k \prod_{i=1}^{r} dt_i \prod_{j=1}^{q} dt_j$ (11)

is formulated. ΔS_k is the space-time interval for the section (t_k, t_{k-1}), ν is a positive factor accounting for each junction of two paths, q is the number of such junctions on the given trajectory, r is the number of inversions in sign of time along the path, t_j are the moments of junction of two paths, t_i are the moments at which time changes its sign. When the particle can be located only at sites of space-time lattice, the above expression for transitions with $\Delta S_k = 0$ assumes the form $W\{x(t)\} = \nu^q$. The fundamental features described by quantum field theory can be described by a distribution of the above type. There is 1 figure. The most important English-language reference is: R. Feynman. Phys. Rev., 76, 749, 1949.

SUBMITTED: January 4, 1962 (initially),
July 6, 1962 (after revision)

Card 2/2

RYAZANOV, I.

Reap as you have sown. Grazhd. av. 20 no.1:8-9 Ja '63. (MIRA 16:4)

1. Sekretar' Krasnodarskogo krayevogo komiteta Kommunisticheskoy partii Sovetskogo Soyuza.

(Krasnodar Territory—Aeronautics in agriculture)

RYAZANOV, I.; YAMNYY, Ye.

From the history of fire prevention. Pozh.delo 9 no.10:30 O '63.
(MIRA 16:12)

VDOVENKO, V.M.; KOVALEVA, T.V.; RYAZANOV, I.A.

Extraction of uranyl nitrate with solutions of trioctylamine in o-xylene at 25°C. Radiokhimiia 5 no.5:619-622 '63. (MIRA 17:3)

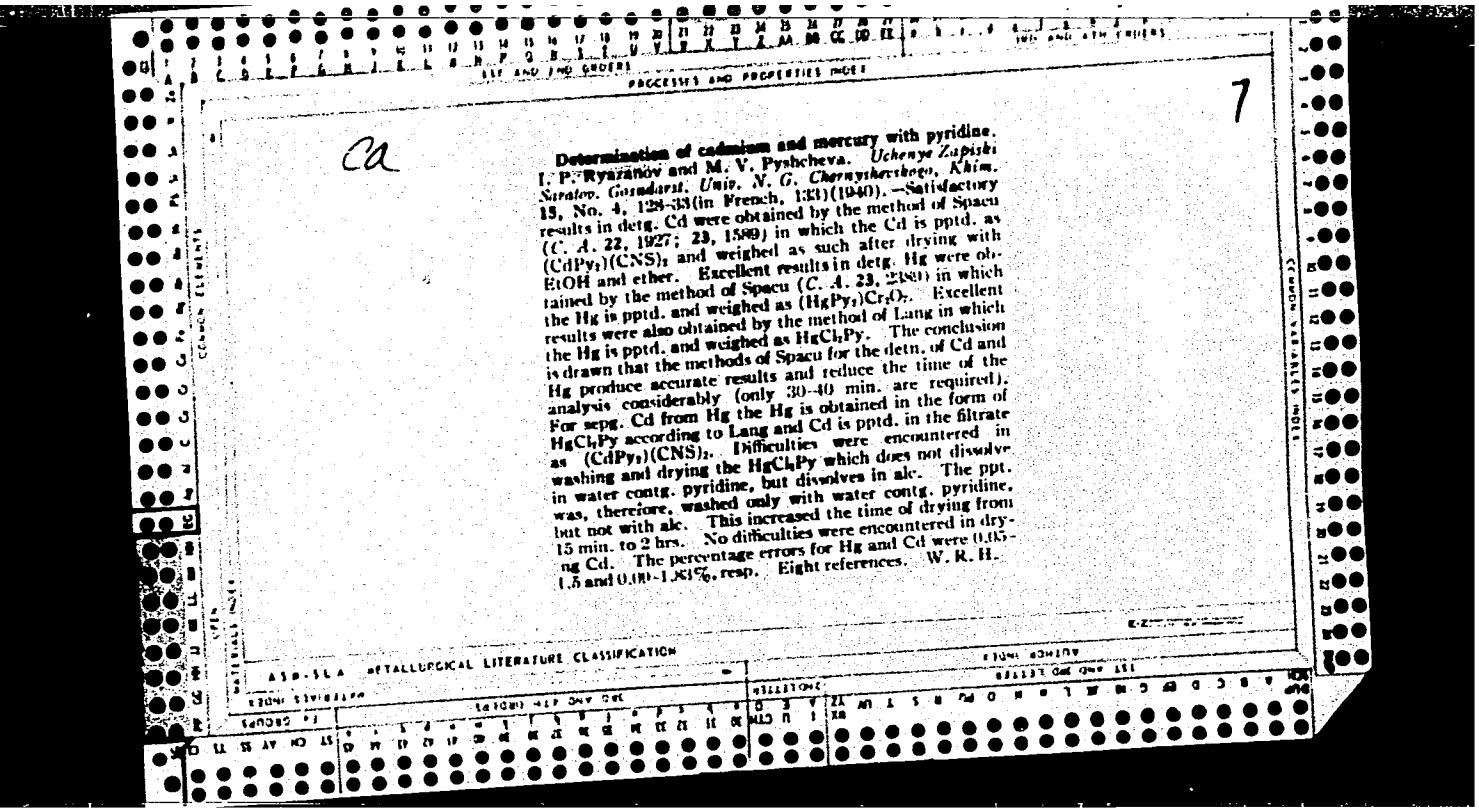
1ST AND 2ND ORDERS

3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

Detection of cobalt with furfuraldehyde in presence of thiocyanates. I. P. Ryazanov. *Abhandl. Staatsunit. Saratov Chem.* 1, 113-16(1936).—$Co(NO_3)_2$ and furfuraldehyde in a satd. soln. of NH_4CNS give a green color perceptible in 10,000 parts of H_2O. Fe if present is pptd. by $Na_4P_2O_7$. Bi must not be present in large quantities. R. C. A

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



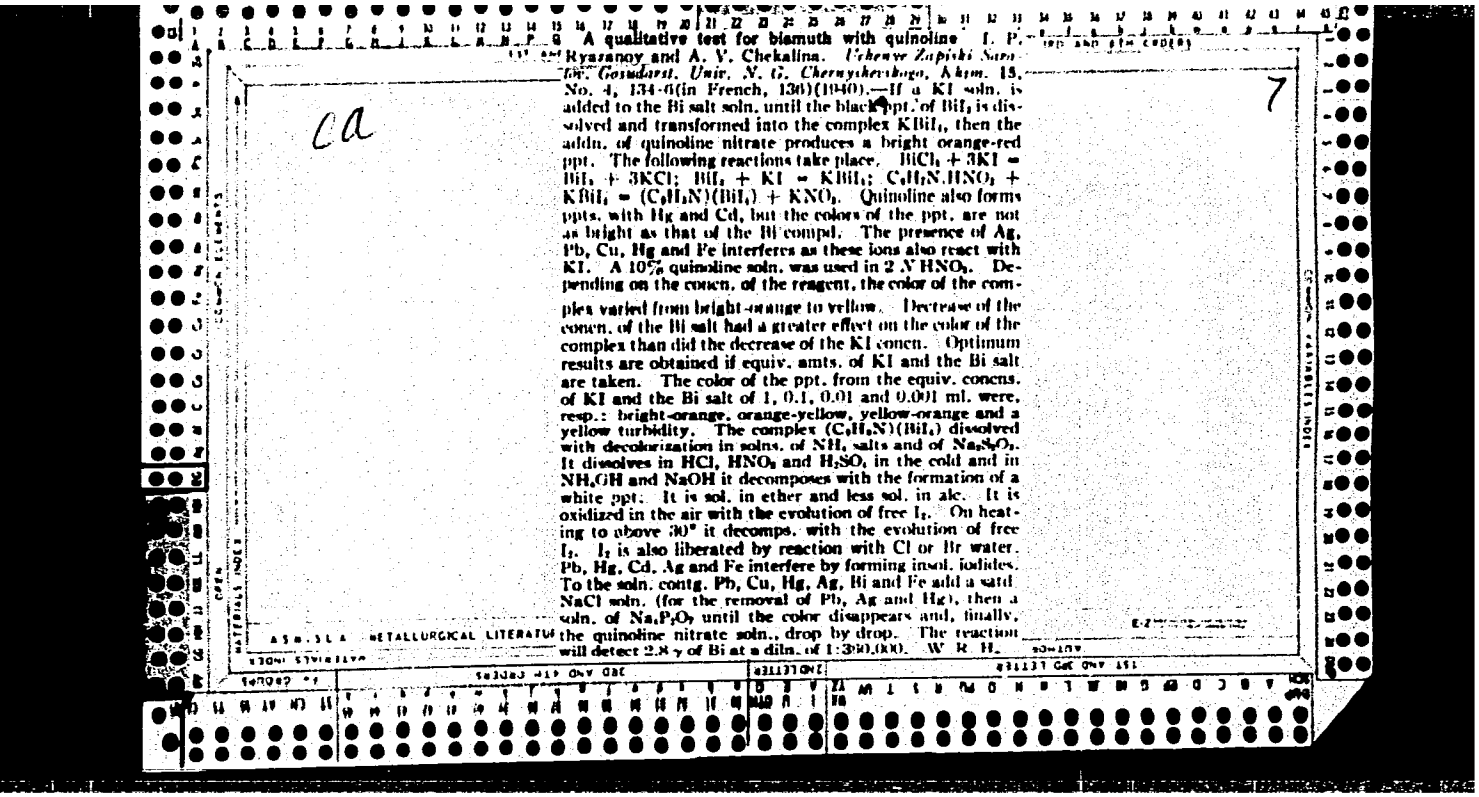
PROCESSES AND PROPERTIES INDEX

7

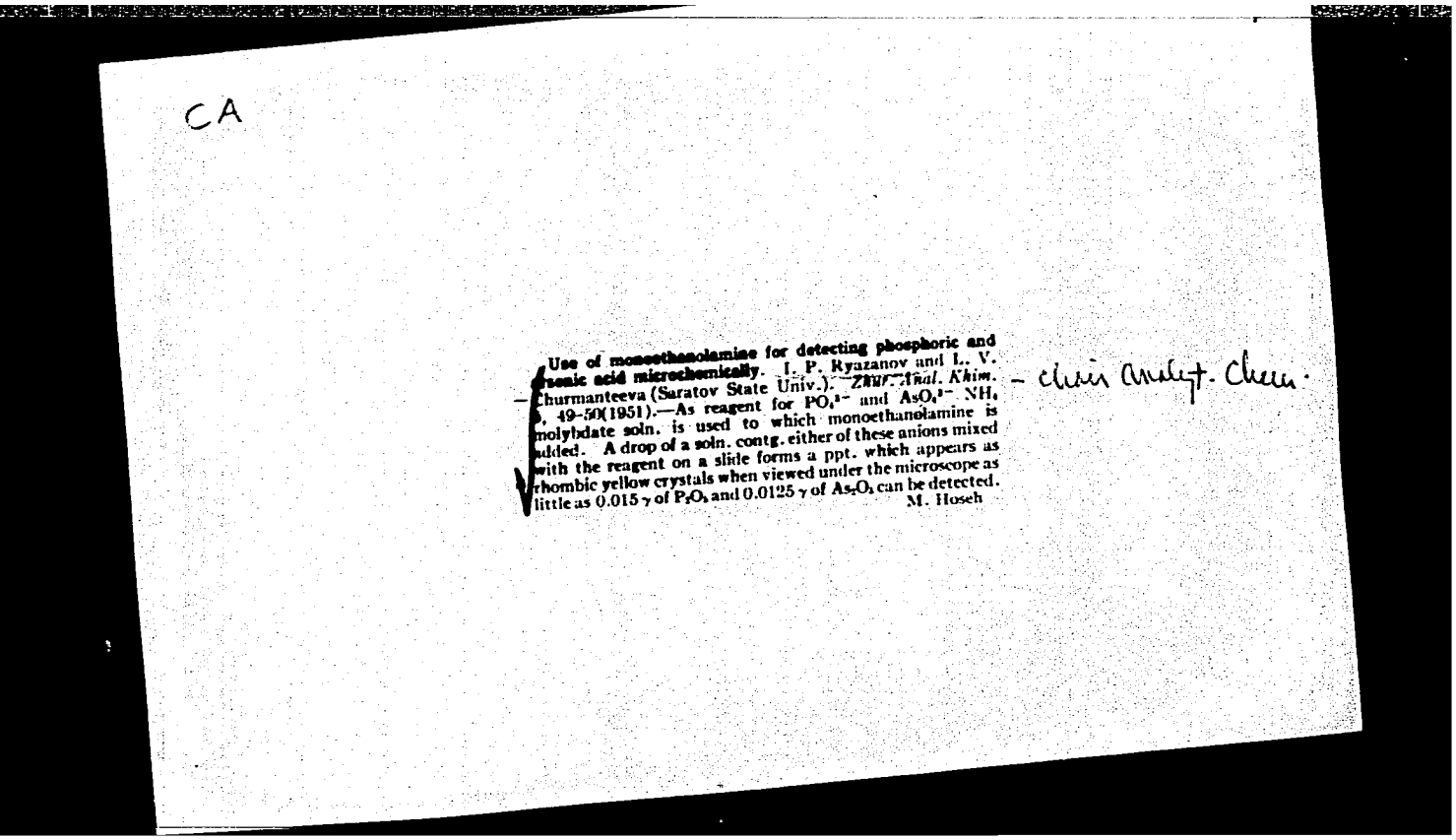
Ca

Determination of cadmium and mercury with pyridine. I. P. Ryazanov and M. V. Pyshcheva. *Uchenye Zapiski Saratov. Gosudarst. Univ. N. G. Chernyshevskogo, Khim.* **15**, No. 4, 129–33(in French, 133)(1940).—Satisfactory results in detg. Cd were obtained by the method of Spacu (*C. A.* **22**, 1927; **23**, 1589) in which the Cd is pptd. as $(CdPy_2)(CNS)_2$ and weighed as such after drying with EtOH and ether. Excellent results in detg. Hg were obtained by the method of Spacu (*C. A.* **23**, 2380) in which the Hg is pptd. and weighed as $(HgPy_2)Cr_2O_7$. Excellent results were also obtained by the method of Lang in which the Hg is pptd. and weighed as $HgCl_2Py$. The conclusion is drawn that the methods of Spacu for the detn. of Cd and Hg produce accurate results and reduce the time of the analysis considerably (only 30–40 min. are required). For sepg. Cd from Hg the Hg is obtained in the form of $HgCl_2Py$ according to Lang and Cd is pptd. in the filtrate as $(CdPy_2)(CNS)_2$. Difficulties were encountered in washing and drying the $HgCl_2Py$ which does not dissolve in water contg. pyridine, but dissolves in alc. The ppt. was, therefore, washed only with water contg. pyridine, but not with alc. This increased the time of drying from 15 min. to 2 hrs. No difficulties were encountered in drying Cd. The percentage errors for Hg and Cd were 0.05–1.5 and 0.180–1.83%, resp. Eight references. W. R. H.

A58-51A METALLURGICAL LITERATURE CLASSIFICATION



A qualitative test for bismuth with quinoline. I. P. Ryazanov and A. V. Chekalina. *Uchenye Zapiski Saratov. Gos. Gosudarst. Univ. N. G. Chernyshevskogo, Khim.* 15, No. 4, 134-6(in French, 136)(1940).—If a KI soln. is added to the Bi salt soln. until the black ppt. of BiI_3 is dissolved and transformed into the complex $KBiI_4$, then the addn. of quinoline nitrate produces a bright orange-red ppt. The following reactions take place. $BiCl_3 + 3KI = BiI_3 + 3KCl$; $BiI_3 + KI = KBiI_4$; $C_9H_7N.HNO_3 + KBiI_4 = (C_9H_7N)(BiI_4) + KNO_3$. Quinoline also forms ppts. with Hg and Cd, but the colors of the ppt. are not as bright as that of the Bi compd. The presence of Ag, Pb, Cu, Hg and Fe interferes as these ions also react with KI. A 10% quinoline soln. was used in 2 *N* HNO_3. Depending on the concn. of the reagent, the color of the complex varied from bright-orange to yellow. Decrease of the concn. of the Bi salt had a greater effect on the color of the complex than did the decrease of the KI concn. Optimum results are obtained if equiv. amts. of KI and the Bi salt are taken. The color of the ppt. from the equiv. concns. of KI and the Bi salt of 1, 0.1, 0.01 and 0.001 ml. were, resp.: bright-orange, orange-yellow, yellow-orange and a yellow turbidity. The complex $(C_9H_7N)(BiI_4)$ dissolves with decolorization in solns. of NH_4 salts and of $Na_2S_2O_3$. It dissolves in HCl, HNO_3 and H_2SO_4 in the cold and in NH_4OH and NaOH it decomposes with the formation of a white ppt. It is sol. in ether and less sol. in alc. It is oxidized in the air with the evolution of free I_2. On heating to above 30° it decomps. with the evolution of free I_2. I_2 is also liberated by reaction with Cl or Br water. Pb, Hg, Cd, Ag and Fe interfere by forming insol. iodides. To the soln. contg. Pb, Cu, Hg, Ag, Bi and Fe add a satd NaCl soln. (for the removal of Pb, Ag and Hg), then a soln. of $Na_4P_2O_7$ until the color disappears and, finally, the quinoline nitrate soln., drop by drop. The reaction will detect 2.8 γ of Bi at a dilu. of 1:360,000. W. R. H.



CA

Use of monoethanolamine for detecting phosphoric and arsenic acid microchemically. I. P. Ryazanov and L. V. Churmanteeva (Saratov State Univ.). *Zhur. Anal. Khim.* 6, 49–50(1951).—As reagent for PO_4^{3-} and AsO_4^{3-} NH_4 molybdate soln. is used to which monoethanolamine is added. A drop of a soln. contg. either of these anions mixed with the reagent on a slide forms a ppt. which appears as rhombic yellow crystals when viewed under the microscope as little as 0.015 γ of P_2O_5 and 0.0125 γ of As_2O_5 can be detected.
M. Hoseh

– Chem Analyst. Chem.

RYAZANOV, I. F. and MOLOT, L. A.

"AColorimetric Determination of Iron With Benzohydroxamic Acid," Zavodskaya Laboratoriya, No. 3, Vol. 18, pp 271-272, 1952.

RYAZANOV, I.P.; CHURMANTEYEVA, L.V.

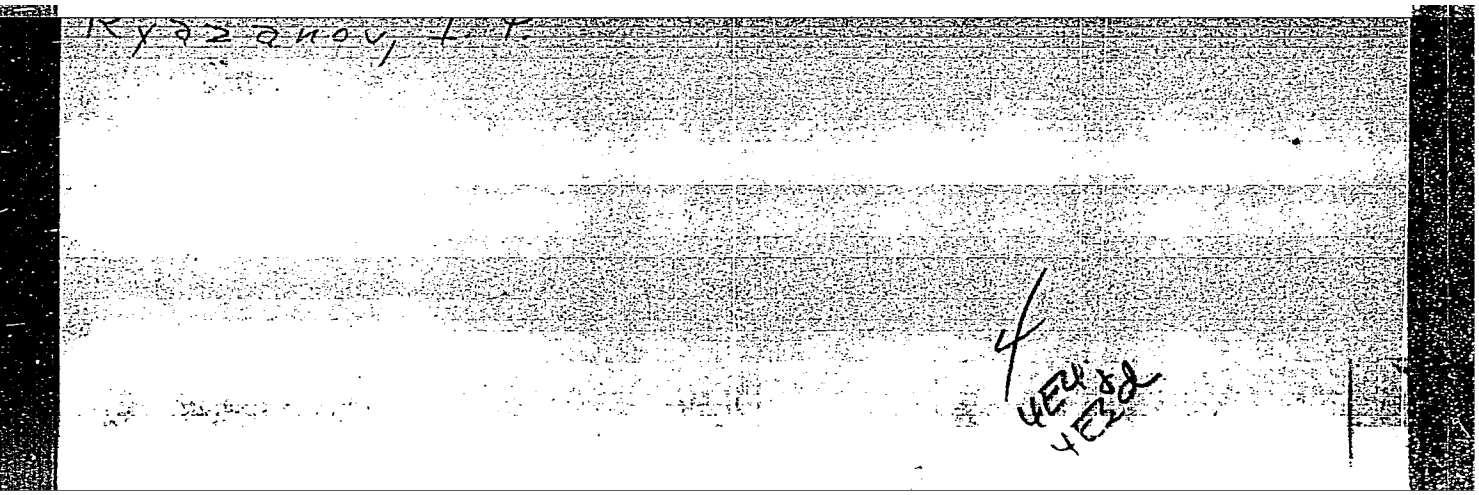
Effect of monoethanolamine base and sulfides on salts of metals of the IV and V analytical groups. Trudy Kom.anal.khim. 5: 106-111 '54. (Ethanol)(Metals) (MLRA 8:6)

RYAZANOV, I. P.

CH

1199. **Determination of heavy metals by means of hydroxamic acids. Determination of lead with oxalhydroxamic acid.** I. P. Ryazanov and T. I. Badeeva. *Uch. Zap. Saratovsk. Univ.*, 1954, 34, 208–210; *Referativnyi Zh., Khim.*, 1955, Abstr. No. 14,210.—The lead salt of oxalhydroxamic acid $(CONHOH)_2$ is almost insol. in water, easily sol. in mineral acids, somewhat sol. in acetic acid, almost insol. in sodium acetate solution, and insol. in caustic alkalis, alcohol, acetone and benzene. To determine Pb in lead nitrate solution, for each 10 ml containing $\simeq 20$ mg of Pb are added, in the cold, 10 to 15 ml of a 1 per cent. solution of the sodium salt of the acid, the ppt. is filtered off after 18 hr. in a sintered-glass crucible, washed with cold water until the washings give no reaction for the hydroxamate, and then dried to const. wt. at 155° to 166° C. The factor for $(CONHO)_2Pb$ to Pb is 0·6371. With 0·0219 g of Pb the results of four determinations were correct to ±0·0001 g.

G. S. Smith



SOV/137-59-1-2172

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 285 (USSR)

AUTHORS: Ryazanov, I. P., Khazova, I. P.

TITLE: Microcrystalloscopic Reaction for Detection of Silver With O-nitrophenolphosphenylic Acid (Mikrokristalloskopicheskaya reaktsiya otkrytiya serebra o-nitrofenolfosfenilistoy kislotoy)

PERIODICAL: Sb. nauchn. tr. Magnitogorskiy gorno-metallurg. in-t, 1958, Nr 16, pp 141-145

ABSTRACT: The O-nitrophenylphosphenylic ["-phenol-" in title, "-phenyl-" in abstract, per Russian text; Trans. Note] acid $C_6H_4(NO_3)OPHOH$ (I) forms with Ag^+ a white crystalline I-Ag precipitate; with Hg^{2+} and Pb^{2+} I forms amorphous white precipitates. Besides Hg_2^{2+} and Pb^{2+}, the reaction of Ag with I is impeded by Sb and Bi. One drop of 0.5-M solution of I is mixed with one drop of $AgNO_3$ solution (1.27 g of salt in 100 cc of water). Rectangular and square laminae of Ag-I salt precipitate immediately. They darken slightly in air and melt with decomposition at 203-205°C. The salt is soluble in HNO_3, in NH_4OH, and in water (1.5 g/liter), but is insoluble in alcohol and benzol. The sensitivity of the reaction is 0.25γ at a 1:80,000

Card 1/2

Microcrystalloscopic Reaction for Detection of Silver (cont.)

dilution. 0.1 g of ore is dissolved with heating in several drops of concentrated HNO_3; the excess of acid is removed by evaporation. The cooled solution is filtered, and the Ag is detected in the filtrate. Bi^{3+}, Sb^{3+}, and Sb^{5+} are removed with ammonia. The reaction is used for detecting Ag in galenite and tetrahedrites, such as arsenofahlerz and antimonfahlerz.

F. I.

SOV/137-59-1-2122

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 278 (USSR)

AUTHORS: Ryazanov, I. P., Chistota, V. D.

TITLE: Triethanolamine as a Reagent for Qualitative Analysis (Trietanolamin kak reaktiv dlya kachestvennogo analiza)

PERIODICAL: Sb. nauchn. tr. Magnitogorskiy gornometallurg. in-t, 1958, Nr 16, pp 146-153

ABSTRACT: A 20% triethanolamine solution (I) at pH 7.77 was used. Al^{3+}, Mn^{2+}, Zn^{2+}, Bi^{3+}, Cd^{2+}, Sn^{2+}, Sb^{3+}, Sb^{5+}, and Fe^{2+} with I form precipitates insoluble in an excess of reagent. Cr^{3+}, Co^{2+}, Ni^{2+}, Pb^{2+}, and Sn^{2+} form colored, soluble complex compounds. Fe^{3+}, Co^{2+}, Ni^{2+}, Hg_2^{2+}, and Hg^{2+} do not form any precipitate with the reagent. Qualitative reactions of cations with I in the presence of $K_2Cr_2O_7$, KI, $(NH_4)_2C_2O_4$, and NH_4CNS, as well as with sodium versenate, Na diethyldithiocarbamate, oxyquinoline, rubeanhydride and anthranyl acids are adduced. A procedure for separating the cations without hydrogen sulfide by using triethanolamine is given.

P. K.

Card 1/1

SOV/137-59-1-2102
Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 276 (USSR)

AUTHORS: Ryazanov, I. P., Chistota, L. M.

TITLE: Chromatographic Determination of Vanadium in Steels (Khromatograficheskoye opredeleniye vanadiya v stalyakh)

PERIODICAL: Sb. nauchn. tr. Magnitogorskiy gornometallurg. in-t, 1958, Nr 16, pp 154-160

ABSTRACT: A description is offered of a method for separation of V from Mo, W, and Fe using Al_2O_3; the method is based on the fact that after addition of a solution of H_2O_2 and a saturated solution of K_2CO_3 to a solution containing V, Mo, W, and Fe, the compounds of Mo, W, and Fe are retained on Al_2O_3, whereas the compounds of V are not retained. 0.2-0.5 g of steel are dissolved in the smallest possible amount of aqua regia. The solution is diluted with 10 cc of hot water and heated for 3-5 min. 2-6 cc of $HClO_4$ are added and the whole is taken to fumes. Cr is then distilled off in the form of CrO_2Cl_2. The solution is transferred into a 100-cc flask. 8-10 drops of 3% H_2O_2 and an excess of concentrated solution of K_2CO_3 are added to an aliquot portion of the solution, and the mixture is

Chromatographic Determination of Vanadium in Steels

heated to decompose the excess H_2O_2. After cooling the solution is passed through the column with the chromotographic Al_2O_3. V passes through the column, together with the wash water, is collected in a 100-cc flask where it is determined by the colorimetric method.

A. M.

80309
SOV/81-59-7-23002

5.5120
5.5140

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 131 (USSR)

AUTHORS: Ryazanov, I.P., Kapkova, Ye.I.

TITLE: Microscopic Reactions of Anions With Complex Cobalt Ammoniates

PERIODICAL: Sb. nauchn. tr. Magnitogorskiy gorno-metallurg. in-t, 1958, Nr 16, pp 161 - 168

ABSTRACT: The following complex cobalt ammoniates: $[Co(NH_3)_6]Cl_3$ (I), $[Co(NH_3)_5Cl]Cl_2$ (II), $[Co(NH_3)_5H_2O]Cl_3$ (III), $[Co(NH_3)_6](NO_3)_3$ (IV), $[Co(NH_3)_5NO_3](NO_3)_2$ (V), $[Co(NH_3)_5H_2O](NO_3)_3$ (VI) and $[Co(NH_3)_4CO_3]_2SO_4$ (VII) were studied as reagents for the detection of anions. One drop of the solution to be analyzed was mixed on the object glass with 1 drop of I, II, III, IV, V, VI or VII solution and the precipitate formed was inspected under the microscope. It was established that I produces sensitive microscopic reactions with IO_4^-, $Fe(CN)_6^{3-}$, $Fe(CN)_6^{4-}$, $PtCl_6^{2-}$, ReO_4^- and CrO_4^{2-} (the detected minimum is 0.5 - 7γ). II, III, IV, V, VI and VII show somewhat less sensitive reactions with the same anions. II and III are suitable for the detection of IO_4^- in the

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SOV/81-59-7-23002

Microscopic Reactions of Anions With Complex Cobalt Ammoniates

presence of ReO_4^- and ClO_4^-, since the latter do not form precipitates with II and III. I is suitable for the detection of $S_2O_3^{2-}$ in the presence of SO_4^{2-}; $PtCl_6^{2-}$ and $AuCl_4^-$ can also be detected by means of I in the case of their combined presence (the crystalline precipitates formed have different shapes). $PtCl_6^-$ is also well detected in the presence of $AlCl_4^-$ by means of II, IV, V and VI.

A. Nemodruk

Card 2/2

RYAZANOV, I.P.; KHAZOVA, I.P.

Arylphosphinic acids acids as a new group of reagents for analysis. Izv.vys.ucheb.zav.; khim.i khim.tekh 2 no.4: 490-492 '59. (MIRA 13:2)

1. Magnitogorskiy gorno-metallurgicheskiy institut. Kafedra obshchey i analiticheskoy khimii.
(Phosphinic acid) (Chemical tests and reagents)

RYAZANTSEV, B., direktor-polkovanik svyazi.

Use of automatic train stops on railroads. Zhel. dor. transp. no.3: 85-89 '47. (MIRA 13:2)
(Railroads--Automatic train control)

AUTHORS: Ryazanov, I. P., Khazova, I. P. SOV/153-2-4-4/32

TITLE: Aryl-phosphinous Acids as a New Group of Analytical Reagents

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1959; Vol 2, Nr 4, pp 490 - 492 (USSR)

ABSTRACT: The position of phosphorus between nitrogen and arsenic, the organic derivatives of which are successfully used as analytical reagents, indicates that also organic derivatives of phosphorus have analytical properties with regard to inorganic compounds. Such reagents, however, are unknown apart from rare exceptions. For this reason, the authors chose the acids mentioned in the title with the empirical formula $R.PH(O)OH$ and $R.[PH(O)OH]_2$ as investigation object. The investigations were carried out by mixing 5 ml of salt solution (concentration 10 mg/ml of the corresponding metal ion) and 0.5 ml of an aqueous-alcoholic 0.5 m solution of the acid. The results are shown in table 1. Hence it appears that the most characteristic property of aryl-phosphinous acids is their ability of precipitating silver ions and ions of monovalent mercury. Table 2 shows the determination results of the sensitivity of the latter reactions in a drop (0.02 ml) on a glass plate. Upon comparison of the sensitivity

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of the reactions it appears: a) The low sensitivity of the reactions of α-naphthyl-phosphinous acid, as compared to phenyl-phosphinous acid, can be explained by the presence of a condensed aromatic ring. Therefore, the "aggravation effect" is missing. b) Acids containing diphenyl radicals (diphenyl and ditolyl) are more sensitive than phenyl-phosphinous acid; the effect mentioned above seems to be present in this case. c) Acids containing phenyl-substituted radicals differ with regard to sensitivity. The latter depends on the properties as well as the position of the substitute in the aromatic radical. The presence of a sulfo group in the aryl radical, the former having lyotropic properties, is related to the loss of reactivity caused by p-sulfo-phenyl-phosphinous acid. d) Upon comparison of the properties of aryl-phosphinous acids with those of hypophosphorous acid it appears that the former have a reduced reducibility mainly with regard to silver and mercury. From the description of the properties of aryl-phosphinous acids it may be concluded that this group of compounds is interesting as being organic reagents since they have a specific effect in relation to silver and monovalent mercury. Therefore, they can be

Aryl-phosphinous Acids as a New Group of Analytical Reagents SOV/153-2-4-4/32

used for practical purposes. The authors used o-nitro-phenyl-phosphinous acid mainly for discovering silver in galenite and fahlores (arseno-fahlore and antimony-fahlore) by means of the microchemical method. There are 2 tables and 1 Soviet reference.

ASSOCIATION: Magnitogorskiy gorno-metallurgicheskiy institut, Kafedra obshchey i analiticheskoy khimii (Magnitogorsk Mining-metallurgy Institute, Chair of General and Analytical Chemistry)

SUBMITTED: February 25, 1958

Card 3/3

RYAZANOV I.P.

Category: USSR/Analytical Chemistry - General Questions. G-1

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30925

Author : Kul'berg L.M., Ryazanov I. P., Badeyeva T. I.
Inst : Saratov University
Title : Phthalylhydroxylamine as a Reagent in Qualitative Analysis.

Orig Pub: Uch. zap. Saratovsk. un-t, 1956, 43, 127-130

Abstract: Description of color reactions for the qualitative detection of Ag^{+} and Ba^{2+} ions by means of phthalylhydroxylamine. Detection of Ag^{+} ions is not interfered with by Au, Pt, Pd, and that of Ba^{2+} ions -- by other alkaline earth metals. Composition of the precipitate formed with Ag corresponds to the formula $C_8H_4O_3NAg$.

Card : 1/1 -11-

RYAZANOV, I.P.

USSR/ Analytical Chemistry. Analysis of Inorganic Substances. G-2

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27167.

Author : I.P. Ryazanov, V.P. Milin.

Inst : Saratov University.

Title : Quantitative Determination of Zirconium with Monoethanolamine.

Orig Pub: Uch. zap. Saratovsk. un-ta, 1956, 43, 155-158.

Abstract: Monoethanolamine (I) is suggested as precipitator of $Zr(OH)_4$. 0.04 g of Zr (4+) salt or less in 40 to 50 ml of the solution is heated to 85 to 90°, acidified with 0.5 ml of 25%-ual HNO_3 and $Zr(OH)_4$ is precipitated with 10 ml of 5%-ual solution of I. 10 or 15 minutes later the precipitate is filtered off, washed 3 or 4 times with a

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USSR/ Analytical Chemistry. Analysis of Inorganic Substances. G-2

Abs Jour: Referat. Zhur.-Khimiya, No. 8, 1957, 27167.

hot 1%-ual solution of I and calcined to ZrO_2 at 800 to 900°. The determination error is about 0.004 g of ZrO_2 or $\leq$ 0.25%. At the potentiometric titration of Zr^{4+} with I solution and hydrogen electrode, the jump of the emf takes place before the equivalent point is reached (error from -4.9 to 5%); if titration was done in alcohol-aqueous solutions, the results of Zr determination are 1.66 to 1.80% too low; at the amperometric titration with Pt microelectrode, first a gradual decrease of i_d (i_d is not proportional to the concentration of Zr) and later a sharp decrease of i_d (i_d is proportional to the concentration of Zr) are observed. The results of Zr determination are about 10% too low.

Card 2/2

RYAZANOV, I.P.

RYAZANOV, I.P.

Pipe grab. [Suggested by I.P. Riazanov]. Rats.i izobr.predl.v stroi. no.148:30-32 '56. (MLRA 10:5)
(Pipe fittings)

RYAZANOV, I.P.

"Rip" bar grab.[Suggested by I.P. Riazanov]. Rats.i izobr.predl.v stroi. no.148:33-34 '56. (MLRA 10:5)
(Boring--Equipment and supplies)

RYAZANOV, I. Ya.

Stone Masons

Experience with the work of a crew of stonemasons in the new socialist city of Novaya Kakhovka. Biul. stroi. tekh. 10, No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

RYAZANOV, K.

RYAZANOV, K.

Yesterday and today. Bukhg.uchet. 14 [i.e. 16] no.8:34-36 Ag '57. (MLRA 10:8)

1. Starshiy bukhgalter 4-godavtoremontnogo zavoda, Moskva.
(Accounting)

RYAZANOV, K.

Obligations of Gorkiy Province loggers. Sel'. stroi. 12 no.7:12 Jl '57. (MLRA 10:8)

1. Starshiy inzhener Gor'kovskogo oblastnogo upravleniya po stroitel'stvu v kolkhozakh.
(Gorkiy Province--Lumbering)

L 19006-65 EWT(m)/EPF(c)/EPR/EWP(j) Pc-4/Pr-4/Ps-4 AFWL/SSD RM/WW

ACCESSION NR: AP5000747 S/0191/64/000/012/0014/0017

AUTHOR: Molchanov, B. V.; Chukardin, B. P.; Borisov, M. F.; Ryazanov, K. B. B

TITLE: An electron microscopic study of chlorine containing organic polysiloxanes during their thermoxidative decomposition

SOURCE: Plasticheskiye massy*, no. 12, 1964, 14-17

TOPIC TAGS: polysiloxane, silicoorganic polymer, polyorganosiloxane, halogenated polysiloxane, polymer structure, electron microscopy, thermooxidative degradation, polycondensation

ABSTRACT: Microstructural changes during heating in air at 200, 250, 350, and 400C were studied by electron microscopy at 1:10,000 magnification with experimental specimens of polyphenyldimethylpolysiloxane, and of polychloro-, polydichloro-, and polytrichlorophenyldimethylsiloxane. The polymers were prepared by cohydrolysis and thermooxidative polycondensation of phenyltrichlorosilane, chlorinated phenyltrichlorosilanes, and dimethyldichlorosilane, and deposited as films from toluene solution. Structural changes in the transparent or semitransparent specimens started at 200-250C and involved the appearance and growth of globules and fibrillae, a loss of transparency, and the emergence of crystalline forms. The changes were less pronounced if only one film surface was exposed to air.

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L 19006-65
ACCESSION NR: AP5000747

Orig. art. has: 9 photomicrographs.

SUBMITTED: 00 ENCL: 00 SUB CODE: MT

NO REF SOV: 004 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446320011-9"

KOCHUROV, Aleksey Stepanovich; NAZAROV, Aleksey Gavrilovich; ZASYPKIN, Aleksey Georgiyevich; GIMMEL'MAN, Nikolay Robertovich; VOLEGOV, Andrey Fedorovich; NESTEROV, Boris Arkad'yevich; TROYANOV, Andrey Konstantinovich; FILIPPOV, A.S., kand.tekhn.nauk, retsenzent; RYAZANOV, K.I., inzh., retsenzent; ZAKHAROV, B.P., inzh., red.; YERMAKOV, N.P., tekhn.red.

[Manual for modelmakers] Spravochnik rabochego-model'shchika. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 379 p. (MIRA 13:3)

(Models and modelmaking)

RYAZANOV, K.I.

Pattern-making management at the "Uralmashzavod" [Ural Machinery Plant]. Lit.proizv. no.2 supplement:25-27 '56. (MLRA 9:7)
(Ural Mountain region--Pattern-making)

RYAZANOV, L.,

In cooperation with pilots. Grazhd. av. 12 no.4:37-38 Ap '55.
(MLRA 8:9)

1. Direktor sovkhoza "Issyk," Kazakhskoy SSR.
(Aeronautics in agriculture)

VOPOZHIKHINA, V.I.; NEPOGOD'YEV, A.V.; RYAZANOV, L.S.

Adsorption processes during the wearing away of additives.
Khim. i tekh.topl. i masel 10 no.11:50-52 N '65.
(MIRA 19:1)

1. Kolomenskiy teplovozostroitel'nyy zavod.

RYAZANOV, L.S., inzh.

Effect of the FMK7-type fine filter on prolonging the life of oil in medium-sized marine diesel engines. Sudostroenie 24 no.4:26-28 Ap '58 (MIRA 11:4)
(Marine diesel engines)
(Filters and filtration)

S/750/62/000/000/004/011

AUTHOR: Ryazanov, L.S., Engineer.

TITLE: Effect of sulfurous fuels and lubricants on the corrosion of component parts of Diesel engines produced by the Kolomenskoye factory.

SOURCE: Bor'ba s korroziyey dvigateley vnutrennego sgoraniya i gazoturbinnykh ustanovok. Vses. sovet nauchn.-tekhn. obshchestv. Moscow, Mashgiz, 1962 88-93.

TEXT: The development of Diesel-engine (DE) production and operation is seriously threatened by the obsoleteness of fuels and lubricants currently available. Current maritime and locomotive DE are powerful (2-4,000 hp and more), light (3-6 kg/hp and less), long-life (8-15,000 hrs), dependable, and economical. They (especially locomotive engines) must also operate on Eastern-petroleum products that are rich in S. The basic requirements can be satisfied by medium-size, high-speed, high-performance, DE with at least 2 atg supercharging. The many contradictory requirements of pow..., weight, and service life can be fulfilled only if the construction materials of the engine and the fuel and lubricants are of the highest anti-wear and anti-corrosion quality. Engine-stand and operational tests with several types of DE conducted at the Kolomenskoye plant have manifested that,

Card 1/2

Effect of sulfurous fuels and lubricants... S/750/62/000/000/004/011

unfortunately, not a single engine can perform on high-S fuels (F) and lubricants (L) as efficiently as on Baku F and L, and that high-performance DE could simply not be operated efficiently on high-S F and L. Tests were run on F with 0.5-1.2%S. Corrosion was judged visually by inspection of all engine parts which come in contact with either F or L; corrosion wear was visibly worse with high-S fuels than with Baku F and L. Typically, on a 37Д(37D) DE, the service life of cylinder sleeves decreased from 14,000 to 6,000 hrs, when F with less than 1% was replaced by F with more than 1% S. Six photographs illustrate the destructive effect of high-S F on exhaust valves and piston faces. 10,000-hr valves began to fail at 4,000 hrs with more-than-1% S F. The high-S F's appeared to be free of active S compounds (H_2S, mercaptanes), so that no appreciable corrosion occurred upstream of the combustion chamber. Summary: 1. The low quality of available F and L materials threatens to impair the further development of DE design and production. High-S Eastern-crude F and L can be utilized only in the presence of additives. 2. Corrosion tests require long and costly runs; indirect methods for the evaluation of corrosion parameters must be developed. 3. The area of applicability of high-S fuels must be clearly defined, and a maximum content of 0.2% should be established for F employed in high-performance DE. There are 4 figures; no tables or refs.

ASSOCIATION: None given.

Card 2/2

L 42173-66 EWT(m)/T DJ

ACC NR: AR6014532 (A) SOURCE CODE: UR/0081/65/000/019/P018/P018

AUTHORS: Badyshtova, K. M.; Vipper, A. B.; Vorozhikhina, V. I.; Denisenko, K. K.; Kreyn, S. E.; Pyatiletova, N. I.; Ryazanov, L. S.; Yastrebov, G. I. 37 B

TITLE: Effect of the extent of refining of the distillate and residual components of DS-14 oil from sulfurous petroleum upon their operational properties

SOURCE: Ref. zh. Khimiya, Abs. 19P129

REF SOURCE: Tr. Kuybyshevsk. n.-i. in-t neft. prom-sti, vyp. 25, 1964, 85-95

TOPIC TAGS: lubricating oil, petroleum refining, phenol / DS-14 lubricating oil, MS-20 lubricating oil, DS-11 lubricating oil

ABSTRACT: Laboratory study and testing on the engine YaAZ-204 of five samples of DS-14 oil of Novokuybyshev NPZ (differing by the technology of their processing) have been performed. The study shows that the changes in the extent of phenolic refining of distillate and residual components (within the limits of 160—180 and 250—320% of phenol, respectively) have no effect on the detergency, antioxidative, and antiwear properties of DS-14 oil containing effective additives. Economically, the most convenient method for producing DS-14 oil is to mix the residual and distillate components of Diesel oil, 60 and 40%, respectively, (i.e., components treated to a less extensive phenolic refining). This leads to lowering the price of DS-14 oil by 15% and to increasing its yield by 4%, as compared with the production of DS-14 oil by mixing oils MS-20 and DS-11. A. N. [Translation of abstract]

SUB CODE: 11

Card 1/1

L 13048-66 EWT(m)/T DJ

ACC NR: AP5027590 SOURCE CODE: UR/0065/65/000/011/0050/0052

AUTHOR: Vorozhikhina, V.I.; Nepogod'yev, A. V.; Ryazanov, L. S.

ORG: Kolomna Diesel Locomotive Plant (Kolomenskiy teplovozostroitel'nyy zavod)

TITLE: Adsorption processes involved in the consumption of additives

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 11, 1965, 50-52

TOPIC TAGS: lubricant additive, adsorption, desorption

ABSTRACT: To study the nature of change in the concentration of additives in motor oil during the first 50 — 100 hr of its use, the authors carried out experiments on a YaAz-204 engine using DS-11 oil with 2% of Monto-613 additive and 0.13% of Santolube-493 additive. It was found that in addition to chemical reactions of the additive with the fuel combustion products and the oil oxidation products, the additive is involved in adsorption and desorption processes. A sharp decrease in the concentration of the active lubricant which occurs during the first few hours of its use is due primarily to its adsorption on the engine parts (and also on oil filters if they are present). During subsequent operation, part of the adsorbed additive is desorbed and returned to the oil. Because of the fact that during the first 30 - 50 hr of the tests the adsorption processes distort the true curve representing the

Card 1/2 UDC: 541.18:665.59

L 13048-66

ACC NR: AP5027590

consumption of the additive in the neutralization of the fuel combustion and oil oxidation products, the relationships established for the consumption of additives during short-term tests cannot be extrapolated to longer periods of service of the of the oil. Orig. art. has: 4 figures.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 2/2

42460

S/750/62/000/000/004/011

AUTHOR: Ryazanov, L.S., Engineer.

TITLE: Effect of sulfurous fuels and lubricants on the corrosion of component parts of Diesel engines produced by the Kolomenskoye factory.

SOURCE: Bor'ba s korroziyey dvigateley vnutrennego sgoraniya i gazoturbinnykh ustanovok. Vses. sovet nauchn.-tekhn. obshchestv. Moscow. Mashgiz, 1962 88-93.

TEXT: The development of Diesel-engine (DE) production and operation is seriously threatened by the obsoleteness of fuels and lubricants currently available. Current maritime and locomotive DE are powerful (2-4,000 hp and more), light (3-6 kg/hp and less), long-life (8-15,000 hrs), dependable, and economical. They (especially locomotive engines) must also operate on Eastern-petroleum products that are rich in S. The basic requirements can be satisfied by medium-size, high-speed, high-performance, DE with at least 2 atg supercharging. The many contradictory requirements of power, weight, and service life can be fulfilled only if the construction materials of the engine and the fuel and lubricants are of the highest anti-wear and anti-corrosion quality. Engine-stand and operational tests with several types of DE conducted at the Kolomenskoye plant have manifested that,

Card 1/2

unfortunately, not a single engine can perform on high-S fuels (F) and lubricants (L) as efficiently as on Baku F and L, and that high-performance DE could simply not be operated efficiently on high-S F and L. Tests were run on F with 0.5-1.2%S. Corrosion was judged visually by inspection of all engine parts which come in contact with either F or L; corrosion wear was visibly worse with high-S fuels than with Baku F and L. Typically, on a 37 D(37D) DE, the service life of cylinder sleeves decreased from 14,000 to 6,000 hrs, when F with less than 1% was replaced by F with more than 1% S. Six photographs illustrate the destructive effect of high-S F on exhaust valves and piston faces. 10,000-hr valves began to fail at 4,000 hrs with more-than-1% S F. The high-S F's appeared to be free of active S compounds (H_2S, mercaptanes), so that no appreciable corrosion occurred upstream of the combustion chamber. Summary: 1. The low quality of available F and L materials threatens to impair the further development of DE design and production. High-S Eastern-crude F and L can be utilized only in the presence of additives. 2. Corrosion tests require long and costly runs; indirect methods for the evaluation of corrosion parameters must be developed. 3. The area of applicability of high-S fuels must be clearly defined, and a maximum content of 0.2% should be established for F employed in high-performance DE. There are 4 figures; no tables or refs.

ASSOCIATION: None given.

Card 2/2

S/262/62/000/011/024/030
I007/I252

AUTHOR: Ryazanov, L. S.

TITLE: Test methods and results on lubricant additives for Kolomna diesel engines

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 11, 1962, 69, abstract 42.11.407. (In collection Prisadki k maslam i toplivam, M., Gostoptekhizdat, 1961, 318–323)

TEXT: The Kolomna plant is testing lubricants on special single-cylinder test stands and on full-scale diesel engines. Test duration 100 hours (65% of the time under full load), without adding to or replacing the lubricant. Prior to the test, the engine is flushed with the tested oil, additive-free. Final evaluation is based on 600–1000 hour tests. The following lubricant additives were tested: циатим-339 (tsiatim-339); вниинп-360 (vnii np-360); МНИ-22К (MNI-22K); вниинп-371 (vnii np-371); $ПМС_{я}$ (PMS_{ya}); НГ–102 У (NG–102 U); as well as fuel additives вниинп-111 (vnii np-111) and ammonia. The piston rings of the 2Д 100 (2D 100); 40Д (40D); 42ДО (42 DO) and Д-42 (D-42) engines, when run on sulfur-containing fuel (S up to 1%) were in a worse condition than when run on the low-sulfur fuels and lubricants. A list of requirements is given with regard to lubricants and additives.

[Abstracter's note: Complete translation.]

Card 1/1

VDOVENKO, V.M.; RYAZANOV, M.A.

Activity coefficients in multicomponent systems. Part 3: Calculation of the activity coefficients of uranyl nitrate in aqueous solutions of magnesium, calcium, strontium, and zinc nitrates. Radiokhimiia 7 no.5:545-553 '65. (MIRA 18:10)

VDOVENKO, V.M.; RYAZANOV, M.A.

Activity coefficients in multicomponent systems. Part 1.
Radiokhimiia 7 no.1:39-45 '65. (MIRA 18:6)

VDOVENKO, V.M.; RYAZANOV, M.A.

Activity coefficients in multicomponent systems. Part 2: Importance of Zdanovskii's rule for estimating the thermodynamic properties of mixed solutions. Radiokhimiia 7 no.4:442-449 '65. (MIRA 18:8)

VDOVENKO, V.M.; KOVALEVA, T.V.; RYAZANOV, M.A.

Effect of the nature of a diluent on the distribution coefficients. Radiokhimiia 7 no.2:133-139 '65. (MIRA 18:6)

S/186/62/004/005/007/009
E075/E135

AUTHORS: Vdovenko, V.M., Kovaleva, T.V., and Ryazanov, M.A.

TITLE: The formation of a second organic phase during extraction of uranyl nitrate with trioctylamine solutions in carbon tetrachloride

PERIODICAL: Radiokhimiya, v.4, no.5, 1962, 609-610

TEXT: The authors observed the formation of two organic phases during extraction of uranyl nitrate from 1 N HNO_3 with 0.185 M trioctylamine (TOA) in CCl_4 at 25 °C. The phenomenon occurred only for uranyl nitrate concentrations > 1.5 M in the equilibrium aqueous phase. With increasing concentration of $UO_2(NO_3)_2$, the concentrations of U and the amine increase in the second organic phase and decrease correspondingly in the first phase. At the same time the ratio $C_{TOA}/C_{UO_2(NO_3)_2}$ decreases in the second phase, indicating an enrichment in the U content. Thus the formation of two organic phases is not connected only with a limited solubility of the solvate forming during the

Card 1/2

S/056/63/044/001/059/067
B102/B186

24,6600

AUTHOR: Ryazanov, M. I.

TITLE: Decay of particles of superhigh energy in condensed matter

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 1, 1963, 355 - 360

TEXT: When particle decay in matter is considered, Coulomb scattering is usually neglected. This is correct as long as the momenta transferred to the external atomic fields are infinitesimal but when they are finite the error can become considerable. For Coulomb scattering in general two modes are possible: (1) Coulomb scattering of initial and final particles occurs independently; then the decay kinematics is the same as in vacuo. (2) Coulomb scattering occurs inside the effective decay region; then initial and final particles are no longer distinguishable and the kinematics differs from that in vacuo. The effect considered is therefore a quantum effect and the interferences arising cannot be obtained by classical calculation. A general method is developed for considering the decay processes of fast particles in matter when Coulomb scattering is taken into account.

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Decay of particles of superhigh...

The electron shell of the atoms is taken into account by a screening factor. The momenta transferred by the atoms of the medium are assumed to be finite but small enough for recoil to be neglected. The atomic potential is considered as an external field U(x) so that the problem is reduced to finding the decay probability in U(x), averaged over the atomic distribution. The calculations are based on the graph technique (Abrikosov, Gor'kov, ZhETF, 35, 1558, 1958) and on Edwards's results (Phil. Mag., 3, 1020, 1958). The graphs that are most effective in the above mentioned case (2) are summed up (the sum is denoted by R_a) so that for $p \gg \lambda$

$$R_a(p_2, p_1; p_2', p_1') = R_0(p_2, p_1; p_2', p_1')\,(1 - B(p_2, p_1'))^{-1}; \qquad (2.3)$$

$$B(p, p') = n_0 (2\pi)^3 4E_1E_2 \int d^3l\,|V_0(l)|^2\,(l^2 - 2p'l - i\delta)^{-1}\,(l^2 + 2pl + i\delta)^{-1}.$$

For B, finally

$$B = -(\alpha/4\lambda)\,\pi\,(\vartheta^2 + \vartheta_{кр}^2)^{-1/2}\,(1 + \vartheta_{кр}^2\,(\vartheta^2 + \vartheta_{кр}^2)^{-1}); \qquad (2.7)$$

$$\vartheta_{кр} = (\alpha/2\lambda)\,[(E_1^2 - E_2^2)/E_1E_2].$$

Card 2/3

RYAZANOV, M.I.

Decay of ultrahigh-energy particles in condensed matter.
Zhur. eksp. i teor. fiz. 44 no.1:355-360 Ja '63. (MIRA 16:5)

1. Moskovskiy inzhenerno-fizicheskiy institut.
(Mesons--Decay) (Quantum statistics)

RYAZANOV, M. I.

95

S/089/62/013/006/019/027
B102/B186

AUTHORS: G. T. and M. R.

TITLE: Nauchnaya konferentsiya Moskovskogo inzhenerno-fizicheskogo instituta (Scientific Conference of the Moscow Engineering Physics Institute) 1962

PERIODICAL: Atomnaya energiya, v. 13, no. 6, 1962, 603 - 606

TEXT: The annual conference took place in May 1962 with more than 400 delegates participating. A review is given of these lectures that are assumed to be of interest for the readers of Atomnaya energiya. They are following: A. I. Leypunskiy, future of fast reactors; A. A. Vasil'yev, design of accelerators for superhigh energies; I. Ya. Pomeranchuk, analyticity, unitarity, and asymptotic behavior of strong interactions at high energies; A. B. Migdal, phenomenological theory for the many-body problem; Yu. D. Fiveyskiy, deceleration of medium-energy antiprotons in matter; Yu. M. Kogan, Ya. A. Iosilevskiy, theory of the Mössbauer effect; M. I. Ryazanov, theory of ionization losses in nonhomogeneous medium; Yu. B. Ivanov, A. A. Rukhadze, h-f conductivity of subcritical plasma;

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RYAZANOV, M.I.

Composite radiation in the case of uniform motion of a charge in a homogeneous medium. Zhur. eksp. i teor. fiz. 43 no.4:1559-1561 O '62. (MIRA 15:11)

1. Moskovskiy inzhenerno-fizicheskiy institut.
(Radiation) (Quantum theory)

RYAZANOV, M.I.

Raman scattering of the radiation from a uniformly moving charge. Zhur. eksp. i teor. fiz. 48 no.5:1490-1498 My '65.
(MIRA 18:7)

1. Moskovskiy inzhenerno-fizicheskiy institut.

L 53797-65 EWT(1)

ACCESSION NR: AP5013909 UR/0056/65/048/005/1490/1498

AUTHOR: Ryazanov, M. I.

TITLE: Raman radiation from a uniformly moving charge

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 5, 1965, 1490-1498

TOPIC TAGS: Raman radiation, Raman scattering, radiating charge

ABSTRACT: The author discusses a mechanism that enables a charge moving uniformly in a medium to emit radiation other than that due to the Cerenkov effect. Since radiation by a moving particle necessitates that the self-field of its charge be transformable into a transverse electromagnetic waves as a result of its interaction with the medium, it is shown, in accordance with the results of an earlier paper by the author (ZhETF v. 43, 1559, 1962) that such a mechanism can be provided by the Raman scattering of the self-field of the charge by the medium. In deriving the conditions under which such radiation can be produced, the author calculates the polarization of the excited medium by the electromagnetic field, determines the intensity of the Raman radiation, and evaluates the ionization losses in the

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ACCESSION NR: AP5013909

medium with excited atoms. It is shown that the frequency of the emitted radiation differs from the excitation energy of the atom. The radiation intensity depends on the velocity of the particle, on the angle of emission of the quantum, and on the excitation energy of the atoms in such a manner, that if the medium contains atoms with one excited state it becomes possible to measure the energy of the particle in terms of the angle of emission of the quantum. Orig. art. has: 20 formulas. [02]

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering Physics Institute)

SUBMITTED: 16Dec64 ENCL: 00 SUB CODE: OP, NP

NO REF SOV: 004 OTHER: 000 ATD PRESS: 4023

Card 2/2

KALASHNIKOV, N.P.; RYAZANOV, M.I.

Ionization losses in an inhomogeneous medium. Zhur. eksp. i teor. fiz. 45 no.2:325-332 Ag '63. (MIRA 16:9)

1. Moskovskiy inzhenerno-fizicheskiy institut.
(Ionization) (Collisions (Nuclear physics))

RYAZANOV, M.I.

Photon emission by a fast particle interacting with elementary excitations in matter. Zhur. eksp. i teor. fiz. 45 no.2: 333-336 Ag '63. (MIRA 16:9)
(Photons) (Quantum theory)

ACCESSION NR: AT3012804 S/2964/63/000/000/0114/0129

AUTHOR: Ryazanov, M. I.

TITLE: Application of quantum field theory methods to Coulomb scattering of charged particles in matter

SOURCE: Primeneniye metodov kvantovoy teorii polya zadacham mnogikh tel. Moscow, 1963, 114-129

TOPIC TAGS: quantum field theory, Coulomb scattering, charged particle scattering, charged particle Coulomb scattering, particle scattering in matter, Green's function, scattering matrix, bremsstrahlung, multiple scattering

ABSTRACT: A method analogous to the diagram method of quantum field theory is developed to take into account multiple scattering, which plays an important role in the analysis of bremsstrahlung of charged particles in the medium. Although a quantum method for calculating

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ACCESSION NR: AT3012804

the multiple scattering with the aid of a density matrix was already developed by A. B. Migdal (Zh. eksperim. i teor. fiz. v. 32, 4, 1957) and applied to pair photoproduction and bremsstrahlung, it is more convenient for an account of multiple scattering to use the Green's function method of quantum field theory, which leads to general results that hold for any elementary scattering act, and involve relatively simple calculations. The average Green's function and the scattering matrix are determined and the diagram technique is used to calculate processes with and without transfer of average momentum to the medium. Orig. art. has: 4 figures and 30 formulas.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 07Oct63 ENCL: 00

SUB CODE: 00 NO REF SOV: 004 OTHER: 001

Card 2/2

L 16909-63 EWT(m)/BDS AFFTC/ASD

ACCESSION NR: AP3005288 S/0056/63/045/002/0333/0336

AUTHOR: Ryazanov, M. I. 51

TITLE: Photon emission by a fast particle interacting with elementary excitations in matter 19

SOURCE: Zhur. eksper. i teoret. fiz., v. 45, no. 2, 1963, 333-336

TOPIC TAGS: photon emission, elementary excitation, phonon, plasmon, quasiparticle Bose excitation

ABSTRACT: It is shown analytically that since emission of a photon by a free particle necessitates (by the energy and momentum conservation laws) the participation of a third body to take up the excess momentum, an elementary long-wave excitation (acoustic or optical phonon, plasmon, or any other quasiparticle with integer spin) can serve as such a third body at sufficiently high energies. The emission of a hard quantum has in such a case a probability noticeably in excess of the bremsstrahlung probability. The most favorable case for the observation of this effect is emission from a heavy particle in a medium made of light elements at very high temperatures. It is concluded that the emission of absorption of elementary Bose excitations myst be taking into account in the analysis of the radiation of a particle in a medium. Orig. art. has 18 formulas.

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AUTHOR: Ryazanov, M. I.

TITLE: On Processes Involving Transfer of Momentum to the Medium

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 3, pp. 854-862

TEXT: The author of the present paper suggests a general method of computing the probability of processes, which takes momentum transfer into account; the change in the transition probability resulting from this effect is investigated for the simplest processes. The effect under consideration occurs in linear approximation if the effect of each atom is studied independently. In most cases it is not necessary to consider multiple scattering, and one can restrict oneself to the first approximation of the perturbation theory. The author studies particles which are sufficiently fast that the momenta are large as compared with the reciprocal Thomas-Fermi radius of the atom $\lambda = me^2Z^{1/3}$, ($\hbar = c = 1$). The Coulomb scattering on the atomic nuclei is thus taken into account, and the existence of the electron sheath is regarded as a

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On Processes Involving Transfer of Momentum to the Medium

S/056/60/038/03/18/033
B006/B014

screening factor only. The existence of finite energy losses in the motion of charged particles in matter entails an imaginary negative addition to the mass of particles (Feynman). As compared to the vacuum, this additional term is small, but finite, and it is also related to the existence of the electron sheath. Effects related to this imaginary additional term are neglected. When investigating the interaction of charged particles with the individual atoms of the medium it is assumed that the momentum transfer is not so large as to make the consideration of the delay and the recoil of atoms necessary. If $U_o(x-x_a)$ is the potential of a single atom, then the potential of all atoms of the medium is assumed to be $\sum_a U_o(x - x_a)$, and must be considered as an outer field. $U(x)$ depends on the actual (but unknown) position of atoms in the amorphous neutral medium. The substitution $V(x) = U(x) - \langle U(x) \rangle$ is carried out, so that it is only necessary to compute the transition probability in an outer field $V(x)$. The matrix element of the vacuum process (2,1) is first written down, and the matrix element in the field $V(x)$ is determined therefrom: (2.5) and/or (2.6). Expressions are then given for the transition probability in the outer field, and it is shown that similar results can be

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On Processes Involving Transfer of Momentum to the Medium

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obtained also by making use of the diagram technique of quantum field theory. The experimentally observable transition probability is dealt with next; and finally, the results obtained are applied to the π-μ decay. As to its nature and properties, the momentum-transfer process considered is similar to the Landau-Pomeranchuk effect for bremsstrahlung. It should be always taken into account in those cases where two or more fast charged particles participate in the process under consideration. The author finally thanks Ye. L. Feynberg and V. M. Galitskiy for their discussions. There are 2 figures and 2 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Physics and Engineering Institute)

SUBMITTED: July 18, 1959

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RYAZANOV, M.I.

Processes involving transfer of momentum to the medium. Zhur. eksp.i teor.fiz. 38 no.3:854-862 Mr '60.
(MIRA 13:7)

1. Moskovskiy inzhenerno-fizicheskiy institut.
(Particles(Nuclear physics))

KALASHNIKOV, N.P.; RYAZANOV, M.I.

Quantum theory of particle scattering in matter without use of the kinetic equation. Zhur. eksp. i teor. fiz. 47 no.3: 1055 S '64. (MIRA 17:11)

1. Moskovskiy inchenerno-fizicheskiy institut.

L 22127-66 EWT(1)/EWT(m)/T IJP(c) GG

ACC NR: AP6004928 SOURCE CODE: UR/0056/65/050/001/0117/0123

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B

AUTHOR: Kalashnikov, N. P.; Ryazanov, M. I.

ORG: Moscow Engineering-Physics Institute (Moskovskiy inzhenerno-fizicheskiy institut)

TITLE: Quantum effects in multiple scattering

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 117-123

TOPIC TAGS: quantum theory, distribution function, multiple scattering, Schrodinger equation, wave function, Fermi statistical theory, nuclear particle, quantum mechanics, particle beam

ABSTRACT: A quantum distribution function is derived, which describes the multiple scattering of a beam of charged particles as a function of the deflection angle and the transverse displacement of the particle. The problem is solved by the simpler method of quantum mechanical theory of multiple scattering formulated previously by the authors (ZhETF v. 48, 1055, 1964). The method consists of solving the Schrodinger equation for the elastic scattering of a particle by a system of many scatterers in the approximation where the wave function depends multiplicatively on the coordinates of the scatterers. The distribution function is obtained by

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ACC NR: AP6004928

averaging the density matrix in the mixed representation over the atomic coordinates. The resultant distribution function coincides in the classical limit with the classical distribution function of Fermi. The use of the quantum mechanical distribution function makes it possible to point out a number of quantum effects in multiple scattering and to investigate the dependence of these effects on the properties of the measurement apparatus and on the original form of the wave packet. The results can be of interest in connection with the known method of measuring the energy of a particle by the angle of multiple scattering, and also in connection with the experimental indications of deviations from the usual theory of multiple scattering at high energies. Orig. art. has: 29 formulas.

SUB CODE: 20/ SUBM DATE: 25Jun65/ ORIG REF: 005/ OTH REF: 004

Card 2/2 BK

L 10916-65 EWT(m)/T/EWA(m)-2 ESD(t)
ACCESSION NR: AP4046426 S/0056/64/047/003/1055/1064

AUTHORS: Kalashnikov, N. P.; Ryazanov, M. I.

TITLE: Quantum theory of particle scattering in matter without the use of the kinetic equation

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 3, 1964, 1055-1064

TOPIC TAGS: quantum distribution function, Coulomb scattering, kinetic equation

ABSTRACT: It is shown that the usual results of the theory of multiple Coulomb scattering can be obtained by straightforward quantum mechanical methods without recourse to a kinetic equation. In particular, an expression is obtained for the quantum distribution function of particles in matter in terms of the scattering amplitude for a single scatterer. The method proposed is based on the general

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ACCESSION NR: AP4046426

postulates of quantum mechanics, and is able to describe in a unified way both multiple scattering through small angles and plural scattering through large angles. The method also permits an estimate of the limits of applicability of the approach, based on the classical distribution function, and yields an estimate of the error involved in such an approach. The quantum distribution function is obtained explicitly for the case of Coulomb scattering; for small angles it agrees with the classical distribution function, while for large angles it gives Rutherford scattering. In the intermediate region, however, it leads to a significant quantum correction which was not taken into account in previous work. Orig. art. has: 50 formulas.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering-Physics Institute)

SUBMITTED: 04Apr64 ENCL: 00
SUB CODE: NP NR REF SOV: 002 OTHER: 003

Card 2/2

RYAZANOV, M. I.

CORRECTIONS TO THE PROBABILITY OF FAST MESON DECAY TO ACCOUNT FOR PLURAL SCATTERING IN DENSE MEDIA
M. I. Ryazanov

Corrections to the probability of fast -meson decay to account for the interaction of charged particles (a meson and a decay electron), were determined taking into consideration the total external potential of the atoms of an amorphous medium. The final result is averaged for all possible locations of the atoms of the medium, and depends only upon the charge of the nucleus and the density of the medium. When the interaction of a particle with a single atom of the medium is considered, the retardation and the atom recoil are neglected and, therefore, the case is limited to not very large transferred momenta.

The electron shell of the atoms is considered merely as a screening factor; its polarization is neglect-

This report was presented at the International Cosmic Ray Conference, Moscow, July 1959 6-11

SOV/56-34-5-30/61

AUTHOR: Ryazanov, M. I.

TITLE: Radiative Corrections on Compton Scattering Allowing for the Polarization of the Environmental Medium (Radiatsionnyye popravki k komptonovskomu rasseyaniyu s uchetom polyarizatsii okruzhayushchey sredy)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 5, pp. 1258-1266 (USSR)

ABSTRACT: A general procedure is developed which makes it possible to take into account the polarization of the medium in calculating radiative corrections in phenomenological quantum electrodynamics. For the purpose of developing such a method in the higher approximations of the perturbation-theory, it is advisable to use the generalization of the covariant perturbation theory of Feynman and Dyson (Dayson) for phenomenological quantum electrodynamics in a medium. The imaginary parts of ε and μ are assumed to be small quantities. The proper energy of an electron in a medium will differ by a finite quantity from the proper energy of an electron in a vacuum. Therefore the Green (Grin) function of the electron in a medium after the renormalization only in the zero approximation of the

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Radiative Corrections on Compton Scattering Allowing for the Polarization of the Environmental Medium

perturbation theory will be equal to the Green function of the electron in a vacuum. Using the higher approximations of the perturbation theory after renormalization leads to additional terms of the mass if the electron moves in a medium. (However, such an additional term does not appear if the electron moves in a vacuum). The next part of the paper investigates only the experimentally observable cross-section of the Compton scattering. The author takes into account also the possibility of production of an additional soft quantum that is not registered by the measuring device. Then follows the calculation of the cross-section of Compton scattering (with account of the terms of second order with respect to e) in the vacuum and in the medium. An expression is also given for the cross-section of the double Compton effect in the vacuum. By adding these two cross-sections, the experimentally observable cross-section of the Coulomb scattering is obtained. The author then investigates the special case in which the electron is at rest with respect to the medium until the collision occurs. Finally, the applicability of the derived formulae is investigated. In experimental measuring of the

Radiative Corrections on Compton Scattering Allowing for the Polarization of the Environmental Medium

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cross-sections of the Compton scattering for small angles, it is necessary to take into account the possibility that the differential cross-section is noticeably changed by the influence of the medium. There are 12 references, 8 of which are Soviet.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Physics and Engineering Institute)

SUBMITTED: December 16, 1957

1. Perturbation theory--Applications 2. Compton effect--Applications

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APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446320011-9"

L 24384-66 EWT(m) DIAAP

ACC NR: AP6011001 SOURCE CODE: UR/0056/66/050/003/0791/0794

AUTHOR: Kalashnikov, N. P.; Ryazanov, M. I.

ORG: Moscow Engineering-Physics Institute (Moskovskiy inzhenerno-fizicheskiy institut)

TITLE: Angular distribution of the bremsstrahlung with allowance for the Landau-Pomeranchuk effect

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 3, 1966, 791-794

TOPIC TAGS: bremsstrahlung, angular distribution, multiple scattering, energy band structure, photon emission

ABSTRACT: In view of the fact that earlier studies of bremsstrahlung were limited to the energy spectrum, which depends on multiple scattering only through the effective radiation length and is not dependent on the direction of the initial particle momentum, and in view of some difficulties in calculating the frequency and direction distributions of the photons, the authors analyze first the effect of multiple scattering on the direction and frequency distributions of bremsstrahlung. It is shown that in the range in which the Landau-Pomeranchuk effect is encountered, multiple scattering decreases the radiation intensity at small angles, but does not affect the large-angle radiation. An exact expression is derived for bremsstrahlung angular and frequency distributions. The formula obtained agrees with the qualitative treatment given by V. M. Galitskiy and I. I. Gurevich (Nuovo Cim. v. 32, 396,

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ACC NR: AP6011001

1964). Integration of the derived formula leads to results obtained by Landau, Pomeranchuk, and Migdal. The broadening of the bremsstrahlung angular distribution in the presence of multiple scattering, which follows from the qualitative study of Galitskiy and Gurevich, is thus confirmed. In the low density limit, the integral of the results over the photon emission angles yields the energy spectrum of the radiation which at low densities agrees with the Bethe-Heitler spectrum, and at low frequencies agrees with the results of Landau, Pomeranchuk, and Migdal. The authors thank V. M. Galitskiy for useful discussions. Orig. art. has: 10 formulas.

SUB CODE: 20/ SUBM DATE: 14Oct65/ ORIG REF: 006/ OTH REF: 002

Card 2/2 UDC

RYAZANOV, M. I., Cand Phys-Math Sci--(diss) "~~Computation~~ Calculation of the polarization of the surrounding medium in higher approximations of the theory of disturbances in quantum electro-dynamics." Mos, 1958. 7 pp (Min of Higher Education USSR. Mos Engineering-Physical Inst), 100 copies (KL,22-58,101)

M. I. RYAZANOV,

Mu-e decay in condensed medium at super-high energies.

report submitted for the 8th Intl. Conf. on Cosmic Rays (IUPAP), Jaipur, India, 2-14 Dec 1963

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R001446320011-9"

RYAZANOV, M.I.

Radiative corrections of Compton scattering taking into account the polarisation of the medium [with summary in English]. Zhur. eksp. i teor. fiz. 34 no.5:1258-1266 My '58. (MIRA 11:6)

1. Moskovskiy inzhenerno-fizicheskiy institut.
(Electron--Scattering) (Photons)